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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,165	12/04/2003	Joshua Gunnar Twait	AUS920030627US1	6786

7590 07/14/2006

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EXAMINER	
WOODS, ERIC V	

ART UNIT	PAPER NUMBER
2628	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/728,165	TWAIT, JOSHUA GUNNAR	
	Examiner	Art Unit	
	Eric Woods	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, see Remarks pages 1-8 and claim amendments, filed 3/1/06, with respect to the rejection(s) of claim(s) 1-23 under 35 USC 103(a) have been fully considered and are persuasive.

Therefore, in view of applicant's amendments to the independent claims, the rejection of claims 1-23 under 35 USC 103(a) over various references stands withdrawn.

The objection to the title is not withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of various references as below.

Applicant's amendment added the limitation that each element of a time dependent variable must be shown as a proportion of its contribution.

Examiner strongly objects to applicant's mischaracterization of the instant reference on pages 1 and 2 of the Remarks. First of all, applicant claims that in Figure 3 of Excel that the total of the individual values of the use of the three words "themes" would have no significance as a combined total. If these were the only three words ('themes') mentioned in the above-recited set of speeches, then the total would **most** assuredly matter. Excel teaches a better method of visualizing stacked area graphs than that of Microsoft Excel, as discussed in 1:18-45 as an example, but the techniques of Microsoft Excel would surely be relevant to the stacked are graph that is shown beneath the line graph in Havre Figure 3.

In any case, the entire point of that reference is that it provides an improvement upon the stacked area chart techniques available in Microsoft Excel. Therefore, any techniques known in Microsoft Excel would therefore apply to the stacked line / area graphs that happen to be shown in Figure 3

As noted in the discussion below, Excel has been added to be the primary reference.

As stated repeatedly in the last two Office Actions, Havre teaches various 'themes' but those themes are **only elements within a set**, e.g. specific items (e.g. percentage sales, specific words, etc.) within a larger set (total sales, total number of words spoken, etc). Assuming that the bottom portion of the graph shown in Havre Figure 3 is the traditional stacked area graph of Excel, as explained in the Excel documentation, then the claim would therefore definitively display the required top line that shows the total value of the variable.

Havre teaches most of the limitations of the claim except the interactivity of the graph. First of all, applicant's arguments that Havre does not teach so-called stacked line or stacked-bar graphs are incorrect. Firstly, Havre teaches that such graphs are well known in the art, as they are implemented in Microsoft™ Excel (Note Havre background, 1:17-43), where the system of Havre improves on this. Next, this teaching further is defined in 1:30-35, where the stacked line graph is defined, which matches the definition in the claim for "displaying the proportion contributed by each element as an area within an ordered set of areas under a line representative of the total value of said time dependent variable." Further, Havre teaches in Figure 3 that the bar graph is in

fact of the stacked-line type below the thematic illustration, since Havre also shows how in Figure 5 "a graphical representation of the thematic components of Fig. 4 stacked upon one another", e.g. the literal stacked line graph shown on a time axis, and also in Figure 7, where the flow chart clearly shows generating the bar or line graph in addition to the thematic representation, where in step S18 the bar graph is calculated and in step S22 it is illustrated. In 4:20-25, Havre clearly states that the **example** data set consists of the frequency of occurrence of particular words within a data set. It is entirely possible as noted in 4:20-25 that any type of data, including a full data set, could be shown, and this is clearly the thought process behind Havre's work, as would be clearly seen in 9:35-65, where the system creates an index of all the occurrences of all words within exemplary files, and **then allows the user to choose which elements to show in the thematic representation**, e.g. to choose the specific portions and subsets of the data, just as Microsoft™ Excel allows the user to do. Indeed, Havre specifically teaches the Microsoft™ Excel is prior art in the background, therefore it would be obvious to look to Excel for any required modification of Havre. Further, Figure 5 of Havre shows such a stacked line graph that is shown versus a time axis as set forth above (3:65-4:5), and further in Figure 4, various numbers of themes can be added (6:30-62). Specifically, Figure 5 shows the graph on a centerline (e.g. on a zero line base, as on a standard graph), is clearly time-based (from data set of Figure 3, which is clearly time-valued, 3:65-4:5) as well as showing the total number of occurrences of the selected objects and their relative proportion and actual number as a percentage of the area under the curve (6:50-7:20), which is further also the case with the stacked-bar type graph under

Figure 3, as in 6:1-13, where of the items in bar graph / histogram, for example portions 45 and 43 show the relative proportions of the specific objects used at a certain point in time, as in the flowing thematic representation overhead, where the total height is representative of the total value.

Lastly, even if applicant wants to argue that the stacked-line graph format shown in Havre Figure 5 is not precisely illustrative of the total value-proportional-stacked-line graph, Microsoft Excel and the stacked-line graph approach taught therein is cited as prior art, thusly making it obvious to modify Havre to utilize such techniques regardless of applicant's previous arguments to the contrary. **AS NOTED IN PREVIOUS OFFICE ACTIONS, EXCEL IS CITED AS RELEVANT PRIOR ART AND IS NOW EXPRESSLY INCORPORATED FOR THE FEATURES IN QUESTION**. Motivation to combine Excel with the Havre reference would be found in that fact that the stacked line graphs in Figure 3 are more analogous to the stacked area graphs of Excel, and the stacked area graphs also connect areas to each other in such a way that clearly displays their relationship and total magnitude with respect to each other. The curve graphs displayed in the upper graph is **exactly** analogous to the stacked area graph shown in Figures 3 and 5.

Finally, since Excel's stacked area graphs are done to illustrate the **total** amount of a variable (e.g. sales), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Excel such that if the user hid one area, that the total sales curve remained the same, since the entire purpose of a stacked area

graph is to allow the user to visualize the relative proportions of each element to a total amount of some kind (e.g. sales by state to total sales, in the Excel example).

In final total, all of applicant's arguments are directed to the old grounds of rejection, which have been substantially modified with the addition of the Excel reference. Therefore applicant's arguments are moot.

Additionally, applicant is attempting to patent an interactive version of a stacked area graph, which has been an integral part of Microsoft Excel for the last 10 years. Examiner reserves the right to add evidence in support of such capabilities that antedate the filing reference to prove inherency in the event that applicant contends that *In re Wilson* and MPEP 2124 do not apply, which will **NOT** constitute new grounds of rejection, since applicant has thoroughly put on notice of examiner's intended course of action prior to appeal, and such action **would** be necessitated by applicant's own action, which therefore would not result in a new grounds of rejection. There is BPAI precedent for that, which will be provided in the Answer.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title must not exceed 8 words. The current title exceeds 20 words. A new title is **REQUIRED**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> **invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 8, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Microsoft Excel ("Excel" – help article entitled "Available chart types" from Microsoft Office Online, described with respect to Microsoft Office 2003, as well as earlier versions of Office, known to be released on or before February 13, 2003 (see, for example, the attached "Microsoft Excel XP – Charts" reference from USC that is attached with a date of February 13, 2003, pages 38-46); therefore, this material is documentation for software released on a certain date, and the release date of such documentation is irrelevant, since it describes inherent characteristics and/or features in such software that was available before the filing date of the instant application; see MPEP 2124 – a factual reference showing inherency does not need to antedate the filing date of the application to show that characteristics of a prior art product was known (In re Wilson, 311 F.2d 266, 135 USPQ 442 (CCPA 1962)). Microsoft Excel 2003 is the same thing as Microsoft Excel XP, and further the USC file is directed to earlier versions of Microsoft Excel, showing that they had the required feature in earlier versions as well. Finally, another article is attached showing that the release date of Microsoft Office

2003 in Britain was October 23, 2003, which in any case is earlier than the filing date of the instant application), Havre (US 6,466,211), and in view of Hao (US PGPub 2005/0088441 A1).

As to claim 1,

A computer implemented user interactive method for graphically displaying the proportion of a total value of a time dependent variable contributed by each of a set of elements comprising the steps of: (Preamble is not given patentable weight, since it only recites a summary of the claim and/or an intended use, and the process steps are capable of standing on their own; see Rowe v. Dror, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997), Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999), and the like.)

-Displaying the proportion contributed by each element of the same time dependent variable as an area within an ordered set of areas under a line representative of the total value of said time dependent variable; (Excel – The "area chart" type with the "stacked area" specific type shown on the page 1 constitutes an example of a "time dependent variable" – e.g. total sales (y axis) versus year (x axis), where the sales are broken down by the amount or proportion of sales per state, where these are stacked, so that the relative proportion of each with respect to each other can be clearly shown, where these constitute 'elements' of a time dependent variable, and these are clearly ordered)(Hao generates graphs involving time-dependent data and other information, in [0027] and similar, specifically stacked-line or bar type of charts in Figure 3D)

-Enabling the user to interactively select one of said set of areas; and (Hao clearly teaches allowing the user to interact with such graphs, see [0014-0016], where the user can select the aggregate or elements thereof, as well as the boundary. Specifically, the user can select sub-areas on the graph as in [0035], where the user can select portions of the aggregate data, and the like) (Havre et al discloses that the claimed feature of a computer implemented user interactive method for graphically displaying the proportion of a total value of a time dependent variable contributed by each of a set of elements comprising the steps of: displaying the proportion contributed by each element as an area within an ordered set of areas [i.e. 'shade, dotted areas' in Fig 3; "areas"; 55,57 in Fig 4-6] under a line representative of the total value of time dependent variable ["reference label"; 47, i.e. time]; (See Fig 3, Fig 5, Fig 6) enabling [i.e. "user interface"; 16] the user to interactively select one of set of areas [55,57]; (See 6:21-24, 9:49-54, etc) and performing a selected operation selected from the group consisting of hiding the selected area [i.e. "the user reduce the number of themes"], displaying the selected area ["selectively display"] and [reordering the position of the selected area within ordered set responsive to user selection]. (See 6:21-24, 9:49-54))(Hao generates graphs involving time-dependent data and other information, in [0027] and similar, specifically stacked-line or bar type of charts in Figure 3D)

-Performing a selected operation selected from the group consisting of hiding the selected area, displaying the selected area and reordering the position of the selected area within said ordered set responsive to said user selection. (Hao clearly teaches that

the user can resize, hide, and otherwise alter selected portions of the aggregate as desired in [0035—0036, 0040]).

Excel teaches most of the limitations of the claim – namely, the stacked area graph displayed on page 1, which shows the proportions and/or contributions of various elements (sales by state) to a total time-dependent variable (total sales, versus time (by year)), where these are ordered and under a total line – namely, that of total sales, but does not teach that the user can interactively select one of the areas and then reorder its position.

Havre teaches that it is an improvement upon Microsoft Excel, which therefore would mean that the stacked area graph features and functionality of Microsoft Excel would be available within that software for showing the traditional 'stacked line' representation within the software in question. Further, Havre clearly teaches that the visualization mode in Figure 3 can be an improvement in certain circumstances, for example in visualizing SELECTED ELEMENTS from a SPECIFIC DATA SET and their interrelationship, e.g. the relationship between only three words – (cane, Brazil, and weapons). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Excel to allow the extra visualization capabilities of Havre, and to be able to use a regular stacked area graph (as discussed on Excel page 1) on the bottom of the visualization of Havre (or to add the extra-axis visualization capabilities of Havre to the stacked graphs of Excel in order for the

user to better be able to place certain interrelationships in the context of various other, historical events of the like (e.g. a graph of total sales for the airline industry would be more optimally viewed with certain historical events (such as September 11, 2001) noted on the graph to explain large shifts in such relationships, which Havre would provide (among other things). See for example Havre

Finally, note that Havre teaches standard stacked area graphs, as in Figure 5 (6:62-7:20), as having certain benefits for understanding certain graphical capabilities, thusly showing full compatibility with and ability to extend the data sets and capabilities of Microsoft Excel.

However, Havre does not teach an interactive graph as required by the latter half of the claim. Therefore, reference Hao is incorporated to cover this limitation. As noted above, Hao clearly teaches that the user can modify the aggregate, change the boundaries and the sizes of the area, the weights and other parameters, as well as hiding selected areas within the ordered set and reordering the position of data as required in the latter half of the claim.

Excel, Havre, and Hao are analogous arts, since they are both directed to methods of visualizing underlying numerical data sets, and thusly also to the same problem-solving area. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Havre to have the additional flexibility and interactivity in Hao for at least the above reasons. Additionally, Hao provides methods for interacting with graphs, which obviously makes them easier to use

and more user-friendly. Hao teaches that such interactivity can allow analysts to visualize data more quickly and understand that data faster, allowing improved service and many other capabilities to understanding underlying data sets [0042].

Finally, since Excel's stacked area graphs are done to illustrate the **total** amount of a variable (e.g. sales), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Excel such that if the user hid one area, that the total sales curve remained the same, since the entire purpose of a stacked area graph is to allow the user to visualize the relative proportions of each element to a total amount of some kind (e.g. sales by state to total sales, in the Excel example).

However, Havre and Excel do not teach an interactive graph as required by the latter half of the claim. Therefore, reference Hao is incorporated to cover this limitation. As noted above, Hao clearly teaches that the user can modify the aggregate, change the boundaries and the sizes of the area, the weights and other parameters, as well as hiding selected areas within the ordered set and reordering the position of data as required in the latter half of the claim. Note that Excel further teaches 100% stacked area graphs similar to those of Hao. Note further that the only thing that Hao must is that areas **can be reordered**.

Excel and Hao are analogous arts, since they are both directed to methods of visualizing underlying numerical data sets, and thusly also to the same problem-solving area. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Excel to have the additional flexibility and interactivity

in Hao for at least the above reasons. Additionally, Hao provides methods for interacting with graphs, which obviously makes them easier to use and more user-friendly. Hao teaches that such interactivity can allow analysts to visualize data more quickly and understand that data faster, allowing improved service and many other capabilities to understanding underlying data sets [0042].

As to claim 2, clearly the Excel reference teaches a stacked area graph.

Regarding claim 3, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is hiding the selected area; and further including the step, responsive to hiding step, of reforming at least one of the remaining displayed areas so as to represent the resulting change of reformed area within ordered set of stacked areas. (See Havre 6:21-24, 9:49-54, also Hao [0035-0036,0040])

Regarding claim 4, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is displaying a selected undisplayed area; and further including the step, responsive to step of displaying, of reforming at least one of the other displayed areas so as to represent the resulting change of reformed area within ordered set of stacked areas. (See Havre 6:21-24, 9:49-54)

Regarding claim 5, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is reordering the position of the selected area within ordered set; further including the step, responsive to step of reordering the position of the selected area within ordered set, of reforming at least one of the other displayed areas so as to represent the resulting change of reformed area

within reordered set of stacked areas. (See Havre 6:21-24, 9:49-54; Hao [0017,0027,0029,0034-0040])

Regarding claim 6, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that displaying a plurality of icons [i.e. "thematic label"; 49] each representative of one of areas whereby the user may select one of areas by selecting the icon representative of the selected area. (See Havre Fig 3, 6:15-25, 9:48-55, and the like, and labels on the various elements, e.g. the word "Brazil" but this would be representative of any type or category of data shown therein). Further, it would be notoriously obvious that a legend could be placed on the graph, as this is done in Microsoft™ Excel, which is noted as background art, and which would be a notoriously and trivially obvious modification that would allow the user to tell at a glance what a particular category of data actually means, although examiner contends that both Havre and Hao teach this limitation. Examiner also takes Official Notice of this fact, and it is well known in the art. Further, Hao teaches that the graph is interactive and that the user can select a sub-area in [0037] and [0005, 0013, 0035].

Specifically, regarding claim 7, refer to the discussion for the claim 6 hereinabove which is incorporated by reference, Havre et al discloses that displaying a plurality of icons [i.e. "thematic label"; 49] each representative of one of areas whereby the user may reorder the position of the selected area by reordering the position of the selected icon representative of the selected area. (See Havre Fig 3). Clearly as noted above in the rejection to claim 6, which is incorporated by reference, this limitation would be

exceedingly obvious in light of Hao's teaching that the user may manipulate the various areas of the graph and select them.

Regarding claims 8-14, claims 8-14 are similar in scope to the claims 1-7, and thus the rejections to claims 1-7 hereinabove are also applicable to claims 8-14.

The additionally recited 'means for displaying' in claim 8 (construed as the display device 38 in the instant application, Figure 1) is monitor 18 in Havre Figure 1, display 15 in Havre Figure 2.

The recited 'means for enabling the user to interact' (construed as mouse 24 and/or keyboard 26, instant application, Figure 1, and programs operable within the computer per se, where the UI adapter 22 **must** be the interface from the mouse to the computer per se, and the software running on CPU 10) consists of Havre Figure 1, mouse 19, keyboard 13, which are collectively user input devices 16, which are shown interfaced to computer 14, which therefore requires an interface module *per se* and the software is that executing upon processor 20 with attendant presence in memory 22.

The recited 'means for performing' (construed in instant application Figure 1, as software operable upon CPU 10 with programs resident in RAM 14 loaded from various storages devices) is Havre, Figure 2, processor 20, with programs resident in memory 26.

Regarding claims 15-20 (computer program product), claims 15-20 are similar in scope to the claims 1-6, and thus the rejections to claims 1-6 hereinabove are also applicable to claims 15-20.

Claims 7 and 14 are rejected under 35 USC 103(a) as unpatentable over Excel, Havre, and Hao as applied to claims 1 and 8 above, and further in view of Chedgey (US 2004/0205726).

Specifically, regarding claim 7, refer to the discussion for the claim 6 hereinabove which is incorporated by reference, Havre et al discloses that displaying a plurality of icons [i.e. "thematic label"; 49] each representative of one of areas whereby the user may reorder the position of the selected area by reordering the position of the selected icon representative of the selected area. (See Havre Fig 3). Clearly as noted above in the rejection to claim 6, which is incorporated by reference, this limitation would be exceedingly obvious in light of Hao's teaching that the user may manipulate the various areas of the graph and select them.

Nonetheless, while the above references do teach implicitly (and/or at least fairly and obviously suggest such a limitation), reference Chedgey is brought in to cover the specific limitation of rearranging elements of the graph by selecting icons and/or labels. Chedgey teaches a system for graphing data to understand dependencies and better visualize data, so it is both an analogous art and directed to the same problem-solving area. Specifically, Chedgey teaches that in [0115-0119, particularly 0116] the user may rearrange nodes and/or sets of nodes, and that icons are used as representative data in [0133] as a label, and the like. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Havre and Hao to utilize this technique of Chedgey because (Abstract, [0016], [0059-0060], etc) it provides a more efficient means of expanding sub-nodes and understanding important interrelationships,

such as weighting, which the Hao reference clearly allows the user to manipulate as above.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Excel, Havre, and Hao et al as applied to claims 1 and the like, and further in view of Yonts (6,590,577).

Regarding claim 21, the combination of Havre et al and Hao et al fail to discloses that selected operation is performed by morphing the displayed stacked area graph through an animated display sequence of stacked graphs. However, such limitation is shown in the teaching of Yonts in an analogous art. [i.e. "tweening and morphing"] (See Yonts 3:38-52) It would have been obvious to one skilled in the art to incorporate the teaching of Havre et al and Hao et al into the teaching of Yonts, in order to effectively provide display visualization with dynamic process, as such improvement is also advantageously desirable in the teaching Havre et al for providing data representation with improved and fancy image manipulation without complicated manner.

Regarding claims 22-23, claims 22-23 are similar in scope to the claim 21, and thus the rejection to claim 21 hereinabove is also applicable to claims 22-23.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Excel, Havre et al (6,466,211) in view of Rao et al (6,085,202).

Regarding claim 1, Havre et al discloses that the claimed feature of a computer implemented user interactive method for graphically displaying the proportion of a total value of a time dependent variable contributed by each of a set of elements comprising

the steps of: displaying the proportion contributed by each element as an area within an ordered set of areas [i.e. 'shade, dotted areas' in Fig 3; "areas"; 55,57 in Fig 4-6] under a line representative of the total value of time dependent variable ["reference label"; 47, i.e. time]; (See Fig 3, Fig 5, Fig 6) enabling [i.e. "user interface"; 16] the user to interactively select one of set of areas [55,57]; (See col. 6 line 21-24, col. 9 line 49-54) and performing a selected operation selected from the group consisting of hiding the selected area [i.e. "the user reduce the number of themes"], displaying the selected area ["selectively display"] and [reordering the position of the selected area within ordered set responsive to user selection]. (See col. 6 line 21-24, col. 9 lines 49-54)

Excel teaches the "area chart" type with the "stacked area" specific type shown on the page 1 constitutes an example of a "time dependent variable" – e.g. total sales (y axis) versus year (x.axis), where the sales are broken down by the amount or proportion of sales per state, where these are stacked, so that the relative proportion of each with respect to each other can be clearly shown, where these constitute 'elements' of a time dependent variable, and these are clearly ordered)(Hao generates graphs involving time-dependent data and other information, in [0027] and similar, specifically stacked-line or bar type of charts in Figure 3D)

Excel teaches most of the limitations of the claim – namely, the stacked area graph displayed on page 1, which shows the proportions and/or contributions of various elements (sales by state) to a total time-dependent variable (total sales, versus time (by year)), where these are ordered and under a total line – namely, that of total sales, but

does not teach that the user can interactively select one of the areas and then reorder its position.

Havre teaches that it is an improvement upon Microsoft Excel, which therefore would mean that the stacked area graph features and functionality of Microsoft Excel would be available within that software for showing the traditional 'stacked line' representation within the software in question. Further, Havre clearly teaches that the visualization mode in Figure 3 can be an improvement in certain circumstances, for example in visualizing SELECTED ELEMENTS from a SPECIFIC DATA SET and their interrelationship, e.g. the relationship between only three words – (cane, Brazil, and weapons). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Excel to allow the extra visualization capabilities of Havre, and to be able to use a regular stacked area graph (as discussed on Excel page 1) on the bottom of the visualization of Havre (or to add the extra-axis visualization capabilities of Havre to the stacked graphs of Excel in order for the user to better be able to place certain interrelationships in the context of various other, historical events of the like (e.g. a graph of total sales for the airline industry would be more optimally viewed with certain historical events (such as September 11, 2001) noted on the graph to explain large shifts in such relationships, which Havre would provide (among other things). See for example Havre

Finally, note that Havre teaches standard stacked area graphs, as in Figure 5 (6:62-7:20), as having certain benefits for understanding certain graphical capabilities, thusly showing full compatibility with and ability to extend the data sets and capabilities of Microsoft Excel.

However, Havre does not teach an interactive graph as required by the latter half of the claim. Therefore, reference Hao is incorporated to cover this limitation. As noted above, Hao clearly teaches that the user can modify the aggregate, change the boundaries and the sizes of the area, the weights and other parameters, as well as hiding selected areas within the ordered set and reordering the position of data as required in the latter half of the claim.

Excel, Havre, and Hao are analogous arts, since they are both directed to methods of visualizing underlying numerical data sets, and thusly also to the same problem-solving area. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Havre to have the additional flexibility and interactivity in Hao for at least the above reasons. Additionally, Hao provides methods for interacting with graphs, which obviously makes them easier to use and more user-friendly. Hao teaches that such interactivity can allow analysts to visualize data more quickly and understand that data faster, allowing improved service and many other capabilities to understanding underlying data sets [0042].

Havre et al does not specifically disclose that reordering the position of the selected area, as recited in claim. However, such limitation is shown in the teaching of Rao et al. [i.e. 'user interface with hiding and reordering manipulation'] (See Abstract

line 24-29, col. 6 line 15-20, col. 26 line 37+) It would have been obvious to one skilled in the art to incorporate the teaching of Rao et al into the teaching of Havre et al, in order to "rearrange the graphical images to reveal additional patterns and trends in the underlying information data" (See col. 6 line 15-20 in Rao), as such improvement is also advantageously desirable in the teaching of Havre et al for providing/manipulating the data visualization with an interactive methodology for effective data analyze. (See col. 9 lines 49-50 in Havre et al)

Finally, since Excel's stacked area graphs are done to illustrate the **total** amount of a variable (e.g. sales), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Excel such that if the user hid one area, that the total sales curve remained the same, since the entire purpose of a stacked area graph is to allow the user to visualize the relative proportions of each element to a total amount of some kind (e.g. sales by state to total sales, in the Excel example).

Regarding claim 2, Havre et al discloses that ordered set of areas under line comprising a stacked area graph formed by ordered set of areas under line. (See col. 1 line 24-30, Fig 5-6) and the Excel reference teaches a stacked area graph.

Regarding claim 3, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is hiding the selected area; and further including the step, responsive to hiding step, of reforming at least one of the remaining displayed areas so as to represent the resulting change of reformed area

within ordered set of stacked areas. (See col. 6 line 21-24, col. 9 line 49-54; Also See Abstract line 24-29, col. 6 line 15-20, col. 26 line 37+ in Rao et al)

Regarding claim 4, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is displaying a selected undisplayed area; and further including the step, responsive to step of displaying, of reforming at least one of the other displayed areas so as to represent the resulting change of reformed area within ordered set of stacked areas. (See col. 6 line 21-24, col. 9 line 49-54; Also See Abstract line 24-29, col. 6 line 15-20, col. 26 line 37+ in Rao et al)

Regarding claim 5, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that the selected operation performed is reordering the position of the selected area within ordered set; further including the step, responsive to step of reordering the position of the selected area within ordered set, of reforming at least one of the other displayed areas so as to represent the resulting change of reformed area within reordered set of stacked areas. (See col. 6 line 21-24, col. 9 line 49-54; Also See Abstract line 24-29, col. 6 line 15-20, col. 26 line 37+ in Rao et al)

Regarding claim 6, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that displaying a plurality of icons [i.e. "thematic label"; 49] each representative of one of areas whereby the user may select one of areas by selecting the icon representative of the selected area. (See Fig 3, Also See Abstract line 24-29, col. 6 lines 15-20, col. 26 line 37+ in Rao et al)

Regarding claim 7, refer to the discussion for the claim 1 hereinabove, Havre et al discloses that displaying a plurality of icons [i.e. "thematic label"; 49] each

representative of one of areas whereby the user may reorder the position of the selected area by reordering the position of the selected icon representative of the selected area. (See Fig 3, Also See Abstract line 24-29, col. 6 lines 15-20, col. 26 line 37+ in Rao et al)

Regarding claims 8-14 claims 8-14 are similar in scope to the claims 1-7, and thus the rejections to claims 1-7 hereinabove are also applicable to claims 18-14.

Regarding claims 15-20, claims 15-20 are similar in scope to the claims 1-6, and thus the rejections to claims 1-6 hereinabove are also applicable to claims 15-20.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Excel, Havre et al (6,466,211) in view of Rao et al (6,085,202), and further in view of Yonts (6,590,577).

Regarding claim 21, the combination of Havre et al and Rao et al fail to discloses that selected operation is performed by morphing the displayed stacked area graph through an animated display sequence of stacked graphs. However, such limitation is shown in the teaching of Yonts in an analogous art. [i.e. "tweening and morphing"] (See col. 3 lines 38-52) It would have been obvious to one skilled in the art to incorporate the teaching of Havre et al and Rao et al into the teaching of Yonts, in order to effectively provide display visualization with dynamic process, as such improvement is also advantageously desirable in the teaching Havre et al for providing data representation with improved and fancy image manipulation without complicated manner.

Regarding claims 22-23, claims 22-23 are similar in scope to the claim 21, and thus the rejection to claim 21 hereinabove is also applicable to claims 22-23.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Woods whose telephone number is 571-272-7775. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eric Woods

June 25, 2006

ULKA CHAUHAN
SUPERVISORY PATENT EXAMINER